Isotactic polyacrylic acid and its salts ...

- toluene - KOH, 13. PPA - H_2O - acetic acid - toluenesulfonic acid. The degree of hydrolysis was determined by potentiometric titration or by titration against phenolphthalein. PAA was precipitated by means of hydrochloric acid. Neutralization of PAA with the corresponding bases yielded the polyacrylates of Na^+, K^+, NH_4^+, $N(CH_3)_4^+$, which were studied under a polarization microscope. PAA was also examined thermogravimetrically and by infrared spectroscopy comparing the results obtained with those obtained on atactic PAA. The following conclusions were drawn: The systems 11 and 12 are most suitable for the hydrolysis of PPA. The diffraction pattern of isotactic PAA indicates a crystalline structure. The thermogravimetrical study showed that PAA crystallizes as hydrate, two monomeric units of PAA binding one molecule H_2O, corresponding to a water content of 11.11%. The K^+ and $N(CH_3)_4^+$ salts of the isotactic PAA crystallize in the form of well defined single crystals. The electron-microscopic and electrochemical study on isotactic PAA and its salts will be reported in the next publication of the authors. There are 5 figures, 1 table, and 4 references: 1 Soviet-bloc

88732

S/190/61/003/001/017/020
B119/B216

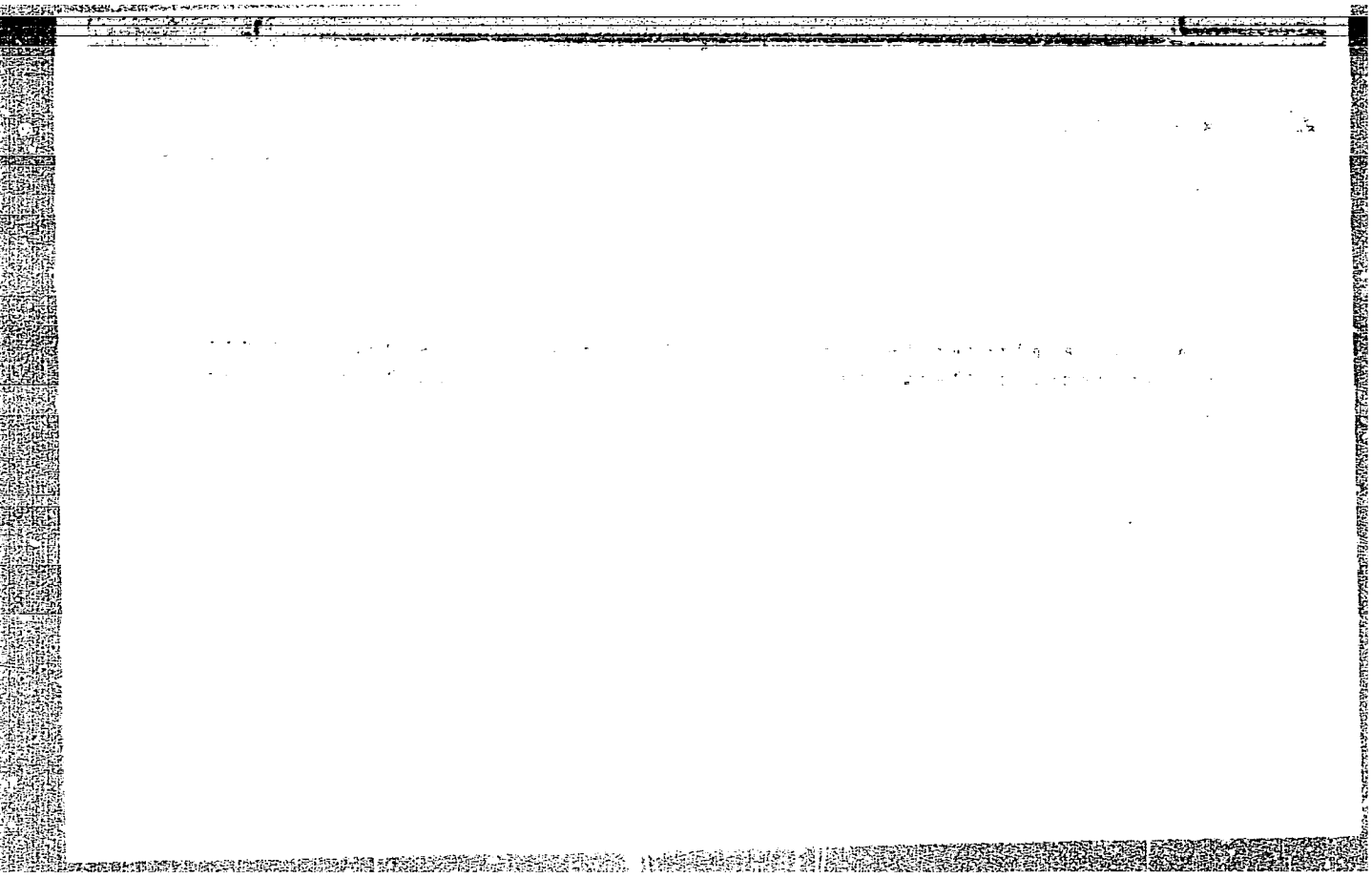
Isotactic polyacrylic acid and its salts...

and 2 non-Soviet-bloc.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: July 22, 1960

Card 3/3



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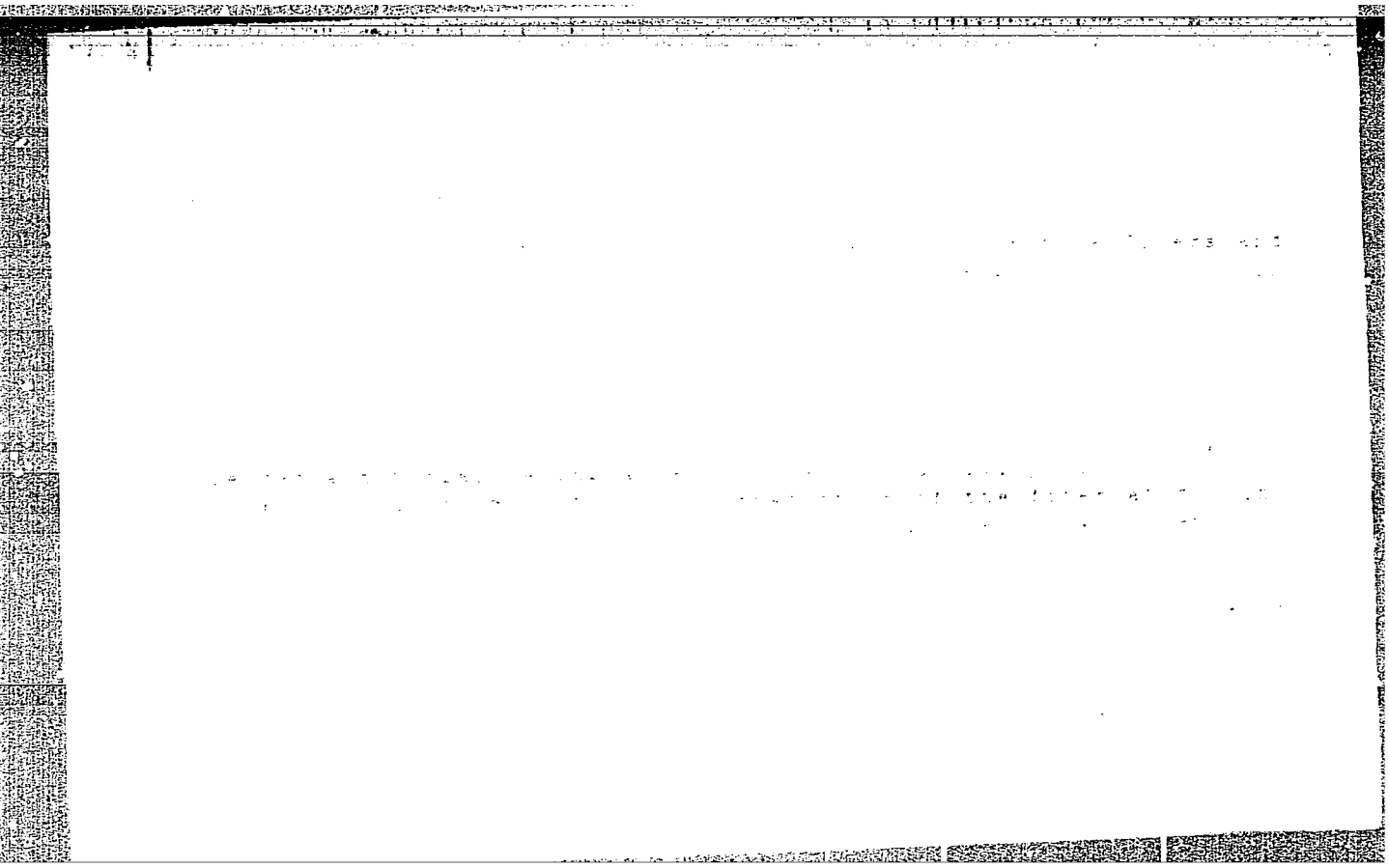


APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001860230007-4"

L 53000-65 EWG(j)/EWT(m)/EPF(c)/EWP(j)/EWA(h)/EWA(1) Pc-4/Pr-4/Peb RM

ACCESSION NR: AP5010834 UR/0020/65/161/004/0857/0860

AUTHOR: Vlasov, A. V.; Tokareva, L. G.; Tsvankin, D. Ya.; Tsetlin, B. L.; Shablygin, M. V.

TITLE: Formation of ordered polyvinylidene chloride by radiation polymerization from the gas phase onto an ordered polymer film

SOURCE: AN SSSR. Doklady, v. 161, no. 4, 1965, 857-860

TOPIC TAGS: [illegible] vinylidine chloride, radiation polymerization, polymer film

[illegible] vinylidene chloride was polymerized from the gas

L 53000-65

ACCESSION NR: AP5[illegible]

Card [illegible]

L 53000-65

ACCESSION NR: AP5010834

SUBMITTED: 21Aug64 ENCL: 00 SUB CODE: Ge OP

NO REF SOV: 003 OTHER: 003

Card 3/3

KARGIN, V.A., akademik; MIRLINA, S.Ya.; KABANOV, V.A.; MIKHEEVA, G.A.; VLASOV, A.V.

Structure and properties of isotactic polyacrylic acid and its salts. Dokl. AN SSSR 135 no.4:893-895 '60. (MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Acrylic acid)

VLASOV, A.V.; MIKHAYLOV, N.V.; TOKAREVA, L.G.; RAFIKOV, S.R.; TSETLIN, B.L.; GLAZUNOV, P.Ya.

Radiation-induced graft polymerization from the gas phase. Khim.volok no. 6:24-28 '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Vlasov, Mikhaylov, Tokareva). 2. Institut elementoorganicheskikh soyedineniy AN SSSR (for Rafikov, TSetlin). 3. Institut fizicheskoy khimii AN SSSR (for Glazunov).

KLADOV, Nikolay Dmitriyevich; VLASOV, Aleksey Vladimirovich; LEBEDEV, V.A., red.; TIKHONOVA, I.M., tekhn.red.

[Let's carry out the seven-year plan in five years; from the work practice of collective and state farms in Volosovo District] Semiletku v piat' let; iz opyta raboty kolkhozov i sovkhozov Volosovskogo raiona. Leningrad, Lenizdat, 1959. 92 p.
(Volosovo District--Agriculture) (MIRA 13:7)

IL'IN, Serafim Andrianovich; VLASOV, A.V., red.; ONEVYSHNV, N.M.; TIKHONOVA, I.M., tekhn.red.

[Problems in the economics of growing vegetables and potatoes on suburban collective farms] Voprosy ekonomiki proizvodstva ovoshchei i kartofelia v prigorodnykh kolkhozakh. Leningrad, Lenizdat, 1960. 138 p. (MIRA 13:7)
(Vegetable gardening) (Potatoes)

RIVLIN, Mordukh El'yevich; AFANAS'YEV, N.V., kand.istoricheskikh nauk, red.; VLASOV, A.V., red.; TIKHONOVA, I.M., tekhn.red.

[Contribution of Leningrad workers to agriculture in the years 1953-1958] Leningradskie rabochie - sel'skomu khoziaistvu, 1953-1958 gg. Pod red.N.V.Afanas'eva. Leningrad, Lenizdat, 1958. 184 p. (MIRA 12:7)
(Leningrad Province--Collective farms)

VLASOV, A.V.

Starting the synchronous motor of the ESh-4-40 walking excavator with direct current. Prom.energ. 14 no.2:14-15 F '59. (MIRA 12:3)

1. Yegor'yevskiy fosforitnyy rudnik.
(Electric motors, Synchronous)
(Excavating machinery)

VLASOV, A.V., inzhener.

Diagram of the connection of single-phase contactors with mechanical interlock for reverse operation of electric motors. Energetik 4 no.3: 25 Mr '56. (MLRA 9:6)
(Electric contactors) (Electric motors)

VLASOV, A.V.

Development of transportation on small rivers. Rech. transp. 15 no.10:3-6 O '56. (MLRA 10:2)

1. Zamestitel' nachal'nika Glavnogo upravleniya rechnogo transporta Ministerstva rechnogo flota.
(Inland water transportation)

VLASOV, A. Ya.

VLASOV, A. Ya. -- "Investigation of the Temperature Dependence of Magnetostriction of Nickel." Sub 3 Apr 52, Moscow Oblast Pedagogical Inst. (Dissertation for the Degree of Candidate in Physicomathematical Sciences).

SO: Vechernaya Moskva January-December 1952

VLASOV, A. YA.

PA 251T38

USSR/Physics - Magnetostriction, Nov/Dec 52
Hysteresis

"Temperature Hysteresis of Magnetostriction," L. V. Kirenskiy, A. Ya. Vlasov, Krasnoyarsk State Pedagogic Inst

Iz Ak Nauk SSSR, Ser Fiz, Vol 16, No 6, pp 673-679

Assumes that temp hysteresis occurs not only in temp magnetization curves, but also in temp curves of even effects, particularly magnetostriction. Attempts exptl proof, studying variations of magnetostriction at various temps and plotting corresponding curves.

251T38

VLASOV, A. Ya.

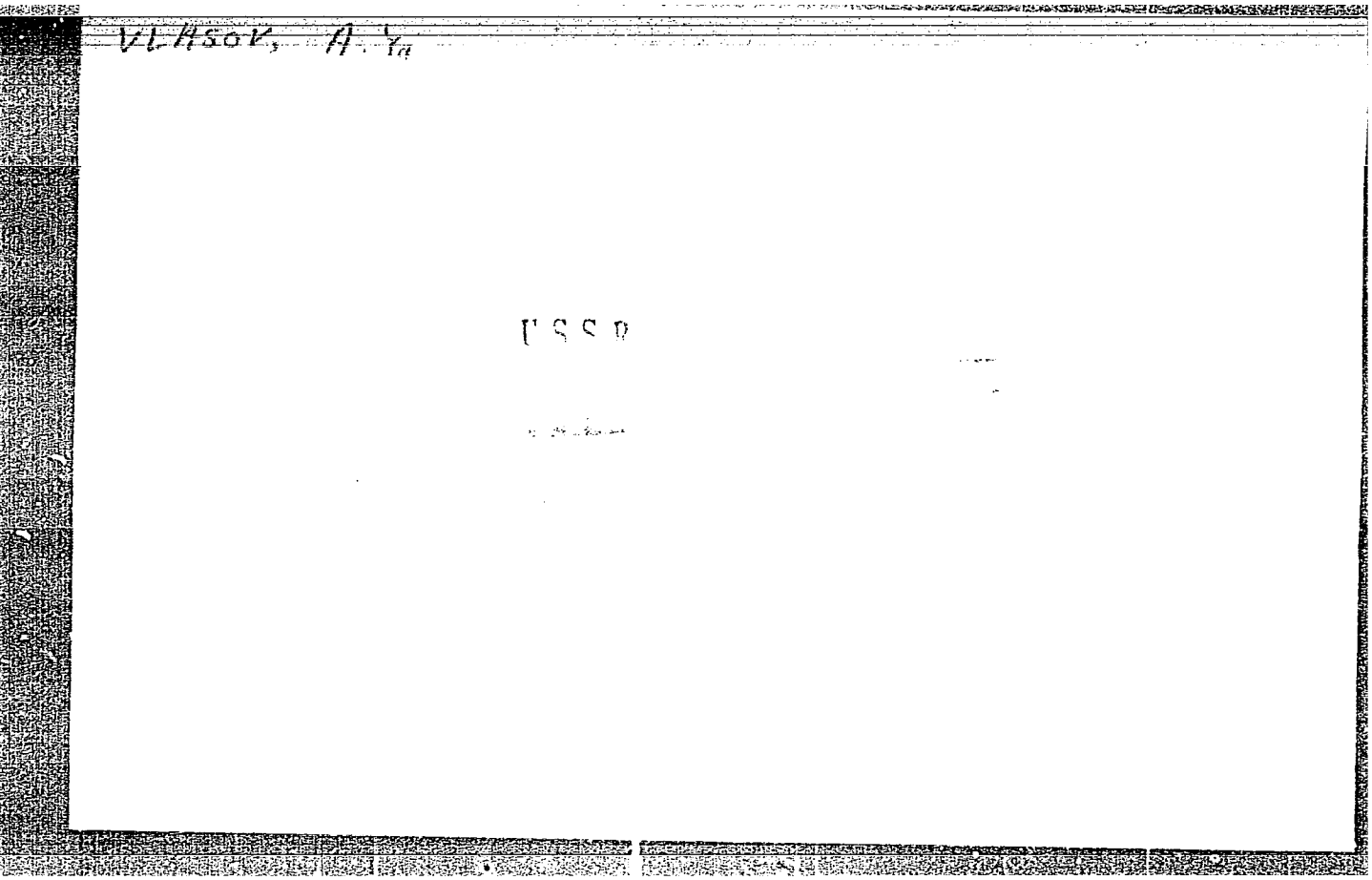
Magnetostriction

Effect of the method of demagnetization of the specimen on the amount of magnetostriction, AN SSSR. Ser. fiz 16, No. 6, 1952. p. 680-82

Results of expts show that magnitude of magnetostriction depends on method of demagnetization; therefore, for obtaining real values of magnetostriction, the demagnetization should be processed by heating the sample above the Curie point.

251T33

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.



VLASOV, A. Ya.

Magnetostriction

Investigation of the temperature dependence of the magnetostriction of nickel by the method of automatic photo recording, Izv. AN SSSR, Ser. fiz. 16, No. 6, 1953 Pp. 718-723 Krasnoyarsk State Pedagogical Inst.

Analyzes divergent results obtained by various investigators; attempts to verify principle of equivalence and theory of precession conversion by N. S. Akulov (Ferromafnetism, 1939). Finds behavior of curve -- saturated magnetostriction vs temp -- linear from -183°C to the Curie point in agreement with Akulov, but assumes this relationship does not hold at temps below -183° C.

251T20

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

VLASOV, A. YA.

AUTHORS: Kirenskiy, L. V., Vlasov, A. Ya., Vtyurin, N. I. 48-9-12/26
Drokin, A. I., Ivlev, V. F., Tukalov, R. I.

TITLE: Note on the Temperature- and Circular-Hysteresis in Ferromagnetic Substances (Temperaturnyy i vrashchatel'nyy gisterezis v ferromagnetikakh).

PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 9, pp. 1262-1267 (USSR.).

ABSTRACT: In this paper experimental investigations were conducted of: 1) The temperature hysteresis of magnetization according to the B-cycle (cooling-heating) (TMH), 2) the temperature hysteresis of magnetostriction (TMH), 3) the temperature hysteresis of the galvanomagnetic effect (THGE) according to the A-cycle (heating-cooling), 4) the phenomenon of the "circular" hysteresis of magnetostriction was established and investigated parallel to the study of the losses in rotating magnetic fields. The investigations were conducted on various samples of nickel. On the examination of the TMH' effect thick samples showed a much more marked effect than thin ones. If further cooling is applied, the thicker samples are subject to the effect of the demagnetization factor, which reduces the originally weak field. The importance of the energy of anisotropy grows, because of which fact

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Note on the Temperature- and Circular-Hysteresis in Ferromagnetic Substances. 48-9-12/26

the magnetization vectors of the domains do not arrange themselves parallel with the magnetic field, but along the easier direction of magnetization, which cannot coincide with the orientation of the weak field. It is shown, that the THM-effect diminishes with the growth of the field. No THM-effect is observed in fields of the order of magnitude of 100 Oe. Analoguous observations were made in the case of the THGE-effect. The magnitude of THM and THGE depends on the initial temperature of heating and on the final point of heating (conversion point), if it is below the Curie point. Analysis of the magnetographs from the magnetic recorder showed, that the magnetostriction as well as the UHM-effect grows strongly with an increase of the field from 100 to 1000 Oe and on a further increase of the fields tends asymptotically to its maximum values.
There are 11 figures and 8 Slavic references.

ASSOCIATION: State Institute for Pedagogics of Krasnoyarsk (Krasnoyarskiy gos. pedagogicheskiy institut).

AVAILABLE: Library of Congress.

Card 2/2

SOV/139-58-5-10/35

AUTHORS: Kirenskiy, L. V., Vlasov, A. Ya. and Vtyurin, N. I.

TITLE: Magnetostriction Hysteresis in Rotating Magnetic Fields (Gisterezis magnitostriktsii v vrashchayushchikhsya magnitnykh polyakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, fizika, 1958, Nr 5, pp 52-54 (USSR)

ABSTRACT: The paper reports experimental investigation of the rotational magnetostriction hysteresis. Measurements were made on a rolled polycrystalline nickel disc 1.02 mm thick and 14.20 mm dia. The degree of the rolling reduction of the disc was 54.7%. The disc was subjected to a 3-hour annealing in vacuo at 1000°C and subsequent slow cooling in a magnetically screened enclosure. Magnetostrictional changes in dimensions of the sample were measured with a wire probe, glued to the sample in the direction of rolling. Both the rotational magnetostriction hysteresis and the rotational magnetization hysteresis losses were measured. Mechanical moments acting on the sample placed in a magnetic field were measured by means of a torque magnetometer whose sensitivity

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Magnetostriction Hysteresis in Rotating Magnetic Fields

was 4 oersted/mm. Themagnetic field was produced by means of an electromagnet which rotated with respect to the sample from 0 to 360° both in forward and reverse directions. The changes in mechanical moments in magnetostriction were recorded on a photographic film in a cylindrical camera which could rotate together with the electromagnet. Special attention was paid to a removal of the possible effect of free-play between the coupled motions of the electromagnet and the recording camera. Measurements were made at 20°C in fields from 100 - 4850 oersted. Fig.1 shows a recording of the curves representing the change in mechanical moments (A), and magnetostriction (B) of nickel both in forward and reverse rotation of a 4850 oersted magnetic field. The magnetization hysteresis losses were calculated from the areas between the curves representing moments. The results (Fig.2) show that the magnetization hysteresis losses increase with increase of the external magnetic field up to 1500 oersted. Between 1500 and 3000oersted the losses decrease with increase of the magnetic field and above 3000 oersted they start increasing again. Magnetograms shownin Fig.1 indicate that in addition to the rotational magnetization hysteresis there is also a rotational magnetostriction hysteresis (curves B). Both the

Magnetostriction Hysteresis in Rotating Magnetic Fields

magnetostriction itself (curve 1 in Fig.3) and the maximum rotational magnetostriction hysteresis (curve 2 in Fig.3) increase rapidly with the magnetic field strength for fields from 0 to 1000 oersted. Above 1000 oersted both curves of Fig.3 approach saturation values. There are 3 figures and 6 Soviet references.

ASSOCIATION: Institut fiziki Sib.otdeleniya AN SSSR, Krasnoyarskiy pedagogicheskiy institut (Physics Institute, Siberian Division of the Academy of Sciences, USSR; Krasnoyarsk Pedagogical Institute)

SUBMITTED: March 20, 1958.

VLASOV, A.Ya.; SAFONOV, V.A.; SAFONOV, I.A.

Temperature dependence of the magnetostriction of nickel-copper alloys. Izv.Sib.otd.AN SSSR no.2:15-18 '59. (MIRA 12:7)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.
(Nickel-copper alloys) (Magnetostriction)

VLASOV, A.Ya.; GUS'KOVA, I.L.

Temperature dependence of the magnetostriction of iron.
Izv. Sib. otd. AN SSSR no.3:3-9 '59. (MIRA 12:8)

1. Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR.
(Iron--Magnetic properties) (Magnetostriction)

S/196/61/000/011/003/042
E194/E155

AUTHORS: Vlasov, A.Ya., and Gus'kova, I.L.

TITLE: An investigation of magnetostriction in iron at various temperatures

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.11, 1961, 1, abstract 11B 4. (Symposium "Magnetic structure of ferromagnetics", Novosibirsk, Sib. otd. AN SSSR, 1960, 233-239)

TEXT: Magnetostriction was investigated at various temperatures on a specimen of Armco iron instead of iron single crystals which have been used in many previous works. The investigations were made on a special equipment which could set up a uniform field of up to 2100 oersted at up to 30 cm in the temperature range from - 183 to + 480 °C. The magnetostriction was measured by remote pickups and the procedure was such that measurements at different temperatures could be made with a single pickup. The relationship between magnetostriction of iron and magnetic field intensity was found to be complex. In the

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temperature range - 183 to + 250 °C the magnetostriction is negative as the field increases, but at temperatures above 250 °C it is positive for all values of field. This is explained by the high anisotropy of magnetostriction in single crystals of iron. The curve of magnetostriction as a function of temperature has an inflection in the temperature region of 480 °C. Similar effects were not observed in comparable investigations with nickel specimens.

10 literature references.

ASSOCIATION: In-t fiziki SO AN SSSR
(Physics Institute SO AS USSR)

[Abstractor's note: Complete translation.]

Card 2/2

S/139/61/000/004/014/023
E073/E535

AUTHORS: Vlasov, A.Ya. and Antonov, I.V.

TITLE: Magnetic temperature hysteresis and magnetostriction temperature hysteresis of silicon-nickel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.4, 1961 115-119

TEXT: Ya.S. Shur and his team and A.I.Drokin made a detailed study of the magnetic temperature hysteresis in nickel and iron containing 4% Si. The results which they obtained indicate that this type of hysteresis is also due to irreversible displacements of the domain boundaries. Studies of the dependence of the magnetic temperature hysteresis on the external mechanical stresses for nickel have shown that uniform stresses below the limit of elasticity always lead to a drop in the magnetic temperature hysteresis. The existence of a magnetostriction temperature hysteresis was first detected in nickel by Kirenskiy and one of the authors (A. Ya.Vlasov. Ref.6: Izv.AN SSSR, Ser.fiz., 16, No.6, 673.1952) However, this phenomenon has still not been adequately investigated Temperature hysteresis of magnetization

Card 1/5

is caused by both 180° and 90° dislacements, but magnetostriction effects are connected only with 90° displacements. Therefore the temperature hysteresis of magnetostriction is caused only by 90° irreversible displacements of the boundaries. It is advisable to study magnetostriction temperature hysteresis simultaneously with the magnetic temperature hysteresis since they are observed under equal field conditions and obey qualitatively the same laws. Hitherto, such investigations have been carried out only on nickel by one of the authors I V.Antonov (Ref 7. Dissertation, Krasnoyarsk Pedagogic Institute, 1960). In the present paper the authors deal with experiments on nickel with additions of silicon which was subjected to thermal cycling in fields up to 10 Oe in the temperature range 8 to 60°C. The alloy was chosen because its low Curie point (50°C) simplifies the compensation for the thermal expansion of the specimen and allows measurements to be made throughout the entire temperature range with a single compensator. The magnetization and the magnetostriction during heating and cooling were measured on a test-rig suitable for simultaneous measurement of both phenomena. A sketch of the test-rig is shown in Fig.1. The coils of the vertical astatic

Magnetic temperature hysteresis . SOV/81/000/004/014/027

Magnetometer 1 had two independent windings - a magnetization winding 2 and a compensation winding 3 (for neutralising the vertical component of the Earth and other parasitic fields). One of the coils had a water cooling jacket 4. The magnetostriction was measured by an instrument based on the principle of the mechanico-optical lever with compensation for the thermal [illegible] of the specimen. The specimen 5 with the compensation rod 6 was in a quartz tube 7, whose surface carried a heating spiral 8. The changes in the length of the specimen caused by magnetostriction were transmitted by means of a quartz rod 6 to an agate prism 9 which supported a light aluminium lever 10; the second prism 11, resting on the end of the lever, was connected to the compensation rod 6. One of the [illegible] rested on the end of the lever (17 cm); the second leg of the lever rested on a static position. Unbalancing of the lever caused by magnetostriction turned the mirror, thus the light beam on the scale. A damper 13 checked mechanical shocks to the lever. The instrument had a sufficiently high sensitivity (0.28×10^{-7}), permitted fixing reliably the zero value of the magnetostriction at

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a constant temperature and ensured reproducibility of the measurements. Hence demagnetization could be effected by direct current switching and changing over to an a.c. which decreased to zero. The changes in the magnetization were recorded during heating and cooling at intervals of 6 to 8 Gauss each. The specimens were rods (length 251.5 mm and diameter 1.8 mm) of nickel with 4 wt.% Si. To relieve internal stresses, the specimens were subjected to high-temperature annealing in vacuo and subsequent slow cooling with magnetic protection. Fig.2 shows the curves of magnetization (a) and magnetostriction (b) obtained during heating and cooling in d.c. fields of 0.0195, 0.05, 1.30, 2.60 and 5.7 Oe. Magnetostriction cannot be detected in a field of 0.0195 Oe, although magnetization was clearly pronounced at this field intensity. The changes in magnetization ΔI, Gauss and in the magnetostriction $\Delta \lambda$ (Fig.3), resulting from cyclic temperature changes at first show a sharp increase with field strength, reaching a maximum for fields of 0.2 to 1.0 Oe and then a reversion to zero at a field strength of 5.77 Oe. The temperature hystereses of magnetization $\Delta I/I_0$ and magnetostriction $\Delta \lambda/\lambda_0$

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decrease with increasing magnetic field and become insignificant even in fields of the order of 1 Oe. There are 3 figures and 10 references: all Soviet.

ASSOCIATIONS: Krasnoyarskiy pedinstitut (Krasnoyarsk Pedagogic Institute) and
Kemerovskiy pedinstitut
(Kemerovo Pedagogic Institute)

SUBMITTED: May 30, 1960

Card 5/6 5

VLASOV, A. Ya.; POPOVA, A.V.; ZVEGINTSEV, A.G.; RODICHEVA, E.K.

Palomagnetic investigation of Devonian sedimentary strata in the central part of Krasnoyarsk Territory. Izv. AN SSSR. Ser. geofiz. no.7:1022-1024 Jl '61. (MIRA 14:6)

1. Akademiya nauk SSSR, Sibirskoye otdeleniye, Institut fiziki.
(Krasnoyarsk Territory--Rocks--Mangetic properties)

VLASOV, A.Ya.; ANTONOV, I.V.

Temperature-dependent magnetic hysteresis and temperature hysteresis of magnetostriction in nickel and nickel-copper alloys. Izv.Sib.otd.AN SSSR no.8:121-124 '61. (MIRA 14:8)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR, Krasnoyarsk i Kemerovskiy pedagogicheskiy institut.
(Hysteresis) (Copper-nickel alloys) (Magnetostriction)

VLASOV, A.Ya.

Effect of the densification of artificially deposited sediments on remanent magnetism. Izv. AN SSSR. Ser. geofiz. no.8:1179-1182 Ag '61. (MIRA 14:7)

1. Akademiya nauk SSSR, Sibirskoye otdeleniye, Institut fiziki.
(Magnetism, Terrestrial)

VLASOV, A.Ya.; KOVALENKO, G.V.; POPOVA, A.V.

Some data on the paleomagnetism of lower Carboniferous sedimentary rocks of Minusinsk Basin. Geol. i geofiz. no.9:112-114 '61. (MIRA 14:11)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR, Krasnoyarsk.
(Minusinsk Basin--Rocks--Magnetic properties)

VLASOV, A.Ya.; ZVEGINTSEV, A.G.

Stability of thermoremanent magnetization of magnetite to a simultaneous effect of temperature and a reversed magnetic field. Izv. AN SSSR. Ser. geofiz. no.10:1522-1524 O '61. (MIRA 14:9)

1. AN SSSR, Sibirskoye otdeleniye, Institut fiziki.
(Magnetite)

VLASOV, A.Ya.; GUS'KOVA, I.L.

Temperature dependence of magnetostriction in iron-silicon alloys.
Fiz. met. i metalloved. 11 no. 2:207-210 F '61. (MIRA 14:5)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.
(Iron-silicon alloys) (Magnetostriction)

24.2200 1160, 1121, 1482, 1416

S/126/61/012/002/003/019
E073/E335

AUTHORS: Antonov, I.V. and Vlasov A.Ya.

TITLE: Temperature Hysteresis of the Magnetization and the Magnetostriction of Nickel

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol. 12, No. 2, pp. 188 - 192

TEXT: Experimental results are given of the magnetic temperature hysteresis and the magnetostriction temperature hysteresis of nickel in a cycle heating cooling (+20 to +400 °C) in fields of various intensities. The experiments were made on a test rig which enabled measuring simultaneously the magnetization and the magnetostriction. The magnetization was measured by means of a vertical astatic magnetometer. The magnetostriction was measured by means of an instrument operating on the principle of a mechanical-optical lever with compensation of the thermal expansion of the specimen. The instrument for measuring the magnetostriction had a sensitivity of 0.28×10^{-7} with good reproducibility of the results. The

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Temperature Hysteresis [illegible]

demagnetization was by means of DC switching, changing over to AC, the amplitude of which decreased to zero. The magnetic as well as the magnetostriction hystereses were measured in every case in a temperature cycle (heating-cooling) from 20 °C to 400 °C. Fig. 2 shows the changes in magnetization, I, gauss as a function of the temperature, °C (1-1 0.0195 Oe; 2-2 0.65 Oe; 3-3 2.60 Oe; 4-4 9.00 Oe). Fig. 3 gives the temperature hysteresis of the magnetostriction (2-2 0.65 Oe; 3-3 2.60 Oe; 4-4 9.00 Oe). Fig. 4 shows the dependence of the magnetic-temperature hysteresis (Curve 1 - ΔI, gauss) and of the magnetistriction-temperature hysteresis (Curve 2 - $\Delta\lambda \times 10^{-6}$) as a function of the external field H, Oe. Fig. 5 shows the relative change in the magnetization (Curve 1) and the magnetostriction (Curve 2) of nickel after a heating-cooling cycle as a function of the intensity of the external magnetic field, H, Oe. The results are in agreement with views expressed by Vonsovskiy, Shur and Akulov on the process of magnetization, according to which in very weak fields

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the displacement of the boundaries is reversible. The proportion of the irreversible displacements increases with increasing field and a maximum value is reached for a certain field intensity. It is particularly for these field intensities that maximum values of temperature hysteresis are obtained.
There are 5 figures and 11 references: 10 Soviet and 1 non-Soviet. The English-language reference quoted is:
Ref. 1 - I.R. Ashworth - Ferromagnetism, London, 1938.

ASSOCIATION: Institut fiziki SO AN SSSR (Institute of Physics of SO AS USSR)
Kemerovskiy pedagogicheskiy institut (Kemerovo Pedagogical Institute)

SUBMITTED: May 20, 1960 (initially)
March 20, 1961 (after revision)

S/048/61/025/012/020/022
B102/B138

AUTHORS: Vlasov, A. Ya., and Tropin, Yu. D.

TITLE: Magnetization and magnetostriction jumps in nickel

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya v. 25, no. 12, 1961, 1514 - 1517

TEXT: Jumps in magnetization and magnetostriction of a nickel crystal were recorded simultaneously, using the device shown in Fig. 1. To record magnetization jumps the device was graduated in units of $A = (dm/dt)_{max}$, the magnetostriction jumps were measured from the percentage elongation $\Delta\lambda = 2xp/EV$ of the crystal. x is the maximum deviation of the crystal from its equilibrium position, p the vibration frequency of the crystal, V its volume and E Young's modulus. Magnetostriction was calculated from $\mathcal{E}(x)$ ($\mathcal{E}$ - signal at the piezo-quartz crystal). The least abrupt change in the length of the specimen was $6 \cdot 10^{-9}$ cm, which corresponded to a change in magnetization of $11 \cdot 10^{-3}$ gauss·cm^3/sec. Magnetic reversal was carried out at a rate of dH/dt = 0.01 oe/sec along the hysteresis loop (H_c = 1.5 oe).

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Magnetization and magnetostriction...

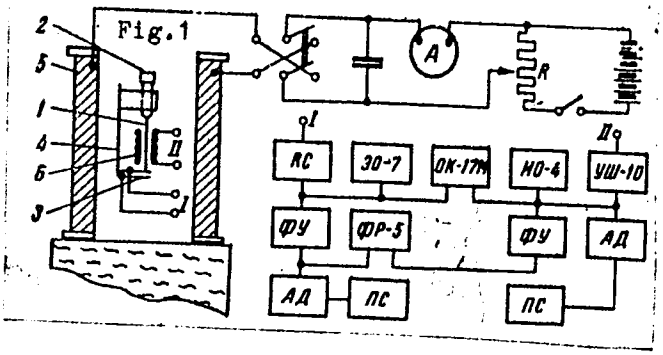
S/048/61/025/012/020/022
B102/B138

The nickel crystal was vacuum annealed (1000°C, 3 hr) and magnetically shielded when cooling. At weak fields the jumps observed in magnetization and magnetostriction were both numerous and large, but this decreased with increasing field strength. At 10 oe the magnetization jumps were below noise level, but the magnetostriction ones were still observable. Proportionality was found between the jump amplitudes of the two types. The statistical distribution of both types of jumps are similar. The most probable amplitude of magnetostriction jumps was $\Delta\lambda_H = 0.40 \cdot 10^{-8}$, mean amplitude was $\Delta\lambda_{mean} = 0.46 \cdot 10^{-8}$. The change due to magnetostriction is given by $\lambda = N\Delta\lambda_{mean}$, $N = 10.6 \cdot 10^{-6}$. The results indicate that irreversible boundary shifts play an important role in magnetostriction. There are 4 figures and 6 references: 4 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: Heap s C. W., Bryan A. B., Phys. Rev., 36, 1930. Heaps C. W., Phys. Rev., 59, 585 (1941).

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Physics of Siberian Branch of the Academy of Sciences, USSR)

Card 2/3

Legend to Fig. 1: (1) specimen, (2) micrometer screw, (3) piezoelectric crystal, (4) stand, (5) magnetizing coil, (6) searching coil; ФУ-forming device, ФР-5(FR-5) photorecorder, АД- amplitude discriminator, ПС - counting system.



Card 3/3

34175
S/048/62/026/002/024/032
B117/B138

24.2200 (1147, 1164, 1482)

AUTHORS: ~~Vlasov, A. Ya.~~ Laptev, D. A., Ayurzanayn, B. A. and Smolin, R. P.

TITLE: Temperature dependence of the magnetic properties of Elinvar

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 2, 1962, 287-290

TEXT: This paper was presented at a Conference on magnetism and antiferromagnetism. The authors studied the temperature dependence of magnetostriction, magnetic hysteresis, and coercive force. The studies were carried out on two test arrangements at the same time. Magnetization and coercive force were measured continuously with a vertical astatic magnetometer (Ref. 7: Drokin, A. I., Il'yushenko, V. A., Zh. eksperim. i teor. fiz., 29, no. 8, 339 (1955)). Magnetostriction was measured by transmitting strain gauges in the temperature range from -195° to +350°C and in magnetic fields of up to 3800 oe. Magnetic hysteresis was studied in the A-cycle (20-300-20°C and 20-400-20°C) in external magnetic fields (0 - 30 oe). Annealed (vacuum 10^{-4} mm Hg, 1100°C, 2 hr) and unannealed

Card 1/2

Temperature dependence of the...

specimens of the following composition were used: 37 % Ni, 7.57 % Cr, 0.52 % Mn, 0.29 % Si, 0.03 % C, 0.011 % P, remainder: Fe. Volume magnetostriction in pure form was observed in fields above 900 oe. The temperature dependence of magnetostriction shows the "saddle" characteristic of invar alloys, with a peak at 155°C. Due to volume magnetostriction, at technical saturation λ_s this dependence is nonlinear. Paraprocess magnetostriction λ_p is stable and not dependent on the previous treatment of the specimen. Unlike most ferromagnetics there are a number of peculiarities in the temperature dependence of magnetization and coercive force around Curie point. In unannealed specimens no "anomalies" are observed. The same holds for the temperature dependence of magnetic hysteresis, which is peculiar in annealed specimens. The absolute value of magnetic hysteresis is highest in unannealed specimens, and the temperature dependence of coercive force has a minimum at 150°C. The anomalies observed in the course of I(T) and H_c(T) can be attributed to the fact that Elinvar has groups of magnetic phases with different Curie points. There are 5 figures and 13 Soviet references

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Physics of the Siberian Department of the Academy of Sciences USSR)

Card 2/2

VLASOV, A.Ya. ; AYURZANAYN, B.A.

Temperature relationship of magnetostriction and the coefficient of linear expansion of elinvar. Izv. Sib. otd. AN SSSR no.6:99-102 '62 (MIRA 17:7)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR, Krasnoyarsk.

APARIN, V.P.; VLASOV, A. Ya.

Boundary of Devonian and Carboniferous according to paleomagnetic data. Izv. AN SSSR Ser. geol. 30 no.1:130-133 Ja'65 (MIRA 18:2)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR, Krasnoyarsk.

VLASOV, A.Ya.; NIKOLAYCHIK, N.V.

Paleomagnetic studies of the Mesozoic of the Taymyr and the central part of Krasnoyarsk Province. Izv. AN SSSR. Ser. geofiz. no.11:1700-1701 N '64. (MIRA 17:12)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

VLASOV, A.Ya.; KOVALENKO, G.V.

Magnetic anistropy of sedimentary rocks. Izv. AN SSSR. Ser. geofiz. no.12, 1789-1800 D '64.

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

BOGDANOV, A.A.; VLASOV, A.Ya.

Domain structure in a magnetite single crystal. Change in the domain structure due to an exterior magnetic field. Izv. AN SSSR. Fiz. zem. no.1:49-58 '65. (MIRA 18:5)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

VLASOV, A. Ya.; KOVALENKO, G.V.

Magnetic anisotropy of artificial sedimentation. Izv. AN SSSR Ser. geofiz. no.8:1206-1212 Ag '64 (MIRA 17:8)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

VLASOV, A. Ya.; ZVEGINTSEV, A. G.; PAVLOV, V. F.

Self-reversal of the magnetization of artificial precipitation. Izv. AN SSSR.Ser.geofiz. no. 4:556-561 Ap '64. (MIRA 17:5)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

VLASOV, A.Ya.; BOGDANOV, A.A.

Domain structure in magnetite single crystals. Izv. AN SSSR. Ser. geofiz. no.3:386-391 Mr '64. (MIRA 17:3)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

VLASOV, A.Ya.; KOVALENKO, G.V.

Some results of magnetic cleaning of samples of sedimentary rocks.
Geol.i geofiz. no.7:109-112 '63. (MIRA 16:10)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR, Krasnoyarsk.

VLASOV, A.Ya.; ZVEGINTSEV, A.G.; BOGDANOV, A.A.

Self-reversal of magnetization in artificial ilmenite-hematite solid solutions. Izv. AN SSSR. Ser.geofiz. no.1:135-140 Ja '63. (MIRA 16:2)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.
(Ilmenite--Magnetic properties)
(Hematite--Magnetic properties)

VLASOV, A.Ya.; ZVEGINTSEV, A.G.

Temperature lag of magnetized magnetite. Izv. AN SSSR. Ser. geofiz. no.8:1230-1233 Ag '63. (MIRA 16:9)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR. Predstavleno chlenom redaktsionnoy kollegii Izvestiy AN SSSR, Seriya geofizicheskaya, B.M.Yanovskim.
(Magnetite--Thermal properties)

VLASOV, A.Ya.; BOGDANOV, A.A.; ZVEGINTSEV, A.G.

Temperature changes in the magnetic properties of natural hematites.
Izv. AN SSSR. Ser.geofiz. no.2:324-328 F '63. (MIRA 16:3)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.
(Hematite--Magnetic properties)

VLASOV, A.Ya.; GUS'KOVA, I.L.

Temperature dependence of the magnetostriction of saturation of iron silicide single crystals. Izv. vys. ucheb. zav.; fiz. no.5:156-160 '62. (MIRA 15:12)

1. Krasnoyarskiy pedagogicheskiy institut.
(Iron silicide crystals—Magnetic properties)

VLASOV, A.Ya.; KOVALENKO, G.V.

Magnetism of the transition beds between zones with direct and reversed magnetization. Izv.AN SSSR.Ser.geofiz. no.4:552-560 Ap '63. (MIRA 16:4)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.
(Magnetism, Terrestrial)

VLASOV, A.Ya.; APARIN, V.P.

Paleomagnetism of the Late Pre-Cambrian based on data obtained by studying Sinian sediments in the Yenisey Ridge. Izv. AN SSSR. Ser. geofiz. no.3:451-454 Mr '63. (MIRA 16:3)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.
(Yenisey Ridge—Rocks, Sedimentary—Magnetic properties)

VLASOV, A. Ya.

Fifth Conference on Paleomagnetism. Geol. i geofiz. no.9:127-128 '62. (MIRA 15:10)

(Rocks—Magnetic properties)

VLASOV, A. Ya.

Fifth All-Union Conference on Paleomagnetism. Sov. geol. 5 no.10:132-135 O '62. (MIRA 15:10)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

(Magnetism, Terrestrial—Congresses)

VLASOV, A.Ya.; KOVALENKO, G.V.

Effect of compaction on the residual magnetization of bottom sediments in the Atlantic. Izv. AN SSSR. Ser.geofiz. no.5: 639-643 My '62. (MIRA 15:8)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.
(Atlantic Ocean--Deep-sea sediments--Magnetic properties)

S/169/62/000/010/016/071
D228/D307

AUTHORS: Vlasov, A.Ya., Kovalenko, G.V. and Popova, A.V.

TITLE: Some data on the paleomagnetism of the Lower Carboniferous sedimentary rocks of the Minusinskaya Basin

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 10, 1962, 14, abstract 10A90 (Geologiya i geofizika, no. 9, 1961, 112-114)

TEXT: The results of paleomagnetic investigation of Lower Carboniferous sedimentary rocks are given. The purpose of the research was to determine the positions of the magnetic poles in this geologic period. Oriented specimens were selected in the vicinity of the Minusinskaya Basin (the overwhelming majority of rock specimens studied was found to be sufficiently stable magnetically). It was established that the average declination and inclination differs considerably from the present geomagnetic field parameters in this area. The coincidence of the data obtained with the results of other authors is noted. [Abstracter's note: Complete translation]

Card 1/1

VLASOV, A.Ya.; POPOVA, A.V.; KOVALENKO, G.V.; NIKOLAYCHIK, N.V.

Paleomagnetic studies of Paleozoic sedimentary rocks in central Siberia. Geol.i geofiz. no.12:95-99 '61. (MIRA 15:5)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR, g. Krasnoyarsk.
(Siberia--Rocks, Sedimentary)

42208
S/139/62/000/005/013/015
E073/E535

24.2200

AUTHORS: Vlasov A.Ya and Gus'kova I.L.

TITLE: Temperature dependence of the saturation magnetostriction of silicon-iron single crystals

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.5, 1962, 156-160

TEXT: The temperature dependence of magnetostriction on single crystals of iron containing 3.5% Si (transformer sheet specimens 50 x 4 x 0.3 mm) was investigated for the first time in the directions [100], [110] and [111] in the plane (110) in the temperature range -196° to 300°C. Results: The magnetostriction constants are not universal for the single crystal. They depend considerably on the investigated crystal plane. At 20°C the constants had the following values: $\lambda_{[100]} = +1.2 \cdot 10^{-6}$, $\lambda_{[110]} = 2.3 \cdot 10^{-6}$, $\lambda_{[111]} = -3.9 \cdot 10^{-6}$. The initial magnetic structure must be taken into consideration since even slight short-duration deformations may greatly affect the magnitude and the characteristic of magnetostriction. In the plane (110)

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Temperature dependence ...

S/139/62/000/005/013/015
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the saturation magnetostriction in the direction [100] should equal zero, in absence of any deformation forces and provided that the domain structure runs right through, as follows from theory.. The determined temperature dependence of saturation magnetostriction along the main crystallographic axes is not in agreement with classical theories: it was found to increase with temperature for all the three crystallographic directions studied, whereby in the directions [110] and [100] there are maxima at 480°C followed by a decrease with increasing temperature. There are 4 figures.

ASSOCIATION: Krasnoyarskiy pedinstitut (Krasnoyarsk Pedagogical Institute)

SUBMITTED: June 22, 1961

Card 2/2

VLASOV, A.Y[illegible]; TROPIN, Yu.D.

Jumps of the magnetization intensity and magnetostriction in nickel. Izv. AN SSSR. Ser. fiz. 25 no.12:1514-1517 D '61. (MIRA 14:12)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.
(Nickel—Magnetic properties)

VLASOV, A.Ya.; TROPIN, Yu.D.

Measurement of jumps of magnetostriction. Izv.vys.ucheb.zav.;fiz. 2:3-6 '62. (MIRA 15:7)

1. Krasnoyarskiy pedagogicheskiy institut.
(Magnetostriction)

VLASOV, A.Ya.; ZVEGINTSEV, A.G.

Phenomena of thermal hysteresis in magnetite. Izv.Sib.otd.AN SSSR no.1:89-92 '62. (MIRA 15:3)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR, Krasnoyarsk.
(Magnetite—Thermal properties) (Hysteresis)

40281

S/200/62/000/006/001/003
D214/D307

18.1151

AUTHORS: Vlasov, A.Ya., and Ayurzanayn, B.A.

TITLE: The dependence of magnetostriction and the coefficient of linear expansion of Elinvar alloy on temperature

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Sibirskoye otdeleniye, no. 6, 1962, 99 - 102

TEXT: The aim of this work is to explain the volumetric and elastic properties of Elinvar alloys in terms of ferro-magnetism. The relationship between magnetrostriction (λ) and temperature was studied. All work was done on annealed specimens of one Elinvar alloy (37 % Ni, 7.56 % Cr, 54.44 % Fe) in the temperature range from -196 to 350°C. Magnetostriction curves constructed for various temperatures showed that in strong magnetic fields (H) the relationship between λ and the field strength in linear and the gradient increases at temperatures approaching the Curie point. This gradient decreases and the curves deviate from linearity when the Curie temperature is exceeded. Extrapolation of these straight portions to H = 0 show that λ, of technical saturation, is linearly related to

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the temperature up to the Curie range, at various field strengths. The coefficient of linear expansion (α) was constant between -196 and 100°C. Above this temperature α rapidly increased linearly with temperature. A theoretical equation relating α to λ has been worked out and experimental results closely agree with the theoretical. This confirms that the anomalies of the thermal expansion of Elinvar are connected with the ferromagnetism of the alloy. There are 4 figures.

ASSOCIATION: Institut fiziki sibirskogo otdeleniya AN SSSR, Krasnoyarsk (Institute of Physics, Siberian Branch of the AS USSR, Krasnoyarsk)

SUBMITTED: June 24, 1961

VLASOV, A.Ya.; LAPTEY, D.A.; AYUZANAYN, B.A.; SMOLIN, R.P.

Temperature dependence of the magnetic properties of elinvar.
Izv. AN SSSR. Ser. fiz. 26 no.2:287-290 F '62. (MIRA 15:2)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.
(Iron-nickel alloys--Magnetic properties)

VLASOV, Aleksandr Yefimovich; MLODIK, Arkadiy Markovich; GRODENSKIY, G.P., otv. red.; TRUSOVA, P.L., tekhn. red.

[Magic window] Volshebnoe okno. Leningrad, Detgiz, 1963. (MIRA 16:5)
158 p.
(Motion-picture photography)

STOYANOVICH, O.; VLASOV, B.; STAL'NICHENKO, V.(Ukraina); DVORNICHENKO, S. (Ukraina) BARAYEV, I. (Leningrad); ISAYEV, N. (Moskva); TARASENKO, V. (Ukraina); ANTONOV, G. (Moskva)

Champions are talking. Pozh. delo 5 no.10:14-15 O '59. (MIRA 13:2)

1. L'vovskoye pozharno-tekhnicheskoye uchilishche (for Stoyanovich).
2. Khar'kovskoye pozharno-tekhnicheskoye uchilishche (for Vlasov).
(Physical education and training)

VLASOV, B.

Saving labor in auxiliary jobs. Sots.trud. no.4:53-60 Ap '56. (MLRA 9:11)

(Machinery industry)

VLASOV, B.

Technological progress and labor organization. Sots. trud 5 no.9: 63-67 S '60. (MIRA 13:10)
(Technology) (Industrial management)

PROCESSES AND PROPERTIES INDEX

The synthesis and properties of the higher oxide of copper, Cu_2O_3. A. P. Buntin and B. A. Vlasov. *Acta Univ. Voronegiensis* **8**, No. 4, ~~11-14(1935)~~.—Freshly pptd. $Cu(OH)_2$ is dissolved in excess 34% NaOH soln. and treated with $NaHO_2$. The reaction is violent and must be cooled. After 10-15 min. red Cu_2O_3 ppts. The yield based on Na_2CuO_2 is 80-90%. With H_2SO_4 Cu_2O_3 does not give H_2O_2 and it is therefore a true oxide. In the presence of HNO_3 it oxidizes $(CO_2H)_2$ to CO_2 and H_2O. It begins to lose O at 100° and gives off most at 300°. At 400° it is completely converted to CuO. It gives a blue soln. in NH_4OH and dissolves in hot H_2SO_4 with evolution of O_2.

H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

The synthesis and properties of the higher oxide of copper, Cu_2O_3. A. P. Buntin and H. A. Vlasov. *Acta Univ. Voronegiensis* 8, No. 4, [illegible] Freshly pptd. $Cu(OH)_2$ is dissolved in excess 34% NaOH soln. and treated with $NaHO_2$. The reaction is violent and must be cooled. After 10-15 min. red Cu_2O_3 ppts. The yield based on Na_2CuO_2 is 80-90%. With H_2SO_4 Cu_2O_3 does not give H_2O_2 and it is therefore a true oxide. In the presence of HNO_3 it oxidizes $(CO_2H)_2$ to CO_2 and H_2O. It begins to lose O at 100° and gives off most at 300°. At 400° it is completely converted to CuO. It gives a blue soln. in NH_4OH and dissolves in hot H_2SO_4 with evolution of O_2.

H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1. VLASOV, B. A.

2. USSR (600)

4. Cupola Furnaces

7. Operation practice of cupola furnaces when using thermonanthracite, Lit. proiz., No. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February, 1953. Unclassified.

VLASOV, B.F.

PHASE I BOOK EXPLOITATION SOV/4531

Akademiya nauk SSSR. Institut mekhaniki

Inzhenernyy sbornik, tom 26 (Engineering Symposium, Vol. 26) Moscow, 1958. 286 p. 2,400 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk. Institut mekhaniki.

Resp. Ed.: A. A. Il'yushin; Ed.: G. I. Pshenichnov; Tech. Ed.: R. M. Lerman.

PURPOSE: This book is intended for engineers.

COVERAGE: The book contains 29 articles dealing with professional work performed by mechanical engineers, such as the calculations of shells, rods, and plates, and solutions of problems in stress distribution and equilibrium. Oscillations (including flutter) and deformation of shells, equilibrium of shell panels, rods and solids, stability of rods, plates, frames and other members, stress concentration, and bending are discussed. Oscillations of aircraft wings are studied. References accompany each article.

AVAILABLE: Library of Congress

POPOV, A.A., doktor tekhn.nauk, prof.; VLASOV, B.F., kand. fiz.-mat. nauk, retsenzent; DANILOV, L.N., inzh., red.

[Graphicoanalytical methods used in engineering strength calculations] Grafo-analiticheskie metody v inzhenernykh raschetakh na prochnost'. Moskva, Mashinostroenie, 1964. 415 p. (MIRA 18:1)

SOV/24-58-12-20/27

AUTHOR: Vlasov, B.F. (Moscow)

TITLE: On the Bending of a Rectangular Elastic Plate Moving in a Gas with a Constant Supersonic Speed (Ob izgibe pryamougol'noy uprugoy plastinki, dvizhushcheysya v gaze s postoyannoy sverkhzvukovoy skorost'yu)

PERIODICAL: Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 12, pp 124-127 (USSR)

ABSTRACT: A study is made of the stressed and deformed states of a thin elastic rectangular plate of constant thickness which moves with a constant supersonic speed in a gas. The plane of the plate is at an angle to the direction of motion. The edges of the plate which are parallel to the direction of motion are fixed by means of hinges. The gas pressure is taken into account using the approximate formula due to Il'yushin (Ref.1). The stability of such a plate has been considered by A.A. Movchan (Ref.2). In the present paper the stationary problem is investigated. From a practical point of view the solution to this problem may be very useful in estimates of stability of a rectangular panel and the

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On the Bending of a Rectangular Elastic Plate Moving in a Gas with a Constant Supersonic Speed

variation of its aerodynamic characteristics due to elastic deformations. It is shown that as the velocity increases, at a given angle, the bending moment and the transverse force at the rear edge increase more rapidly than at the front edge. The aerostatic load is then concentrated near the rear end of the plate. At the same time the elastic line assumes a triangular form. There are 3 figures and 4 Soviet references.

SUBMITTED: 20th December 1957.

Card 2/2

VLASOV, B.F.: Cand Master Phys-Math Sci (diss) -- "Some problems in the equilibrium of elastic slabs". Moscow, 1958. 6 pp, (Moscow State U im M.V. Lomonosov), 150 copies (KL, No 1, 1959, 112)

VLASOV, B.F.

VLASOV, B.F.

A case of bending of a rectangular thick plate. Vest.Mosk.un.Ser. mat., mekh., astron., fiz., khim. 12 no.2:25-34 '57. (MIRA 10:12)

1.Kafedra teorii uprugosti Moskovskogo universiteta.
(Elastic plates and shells)

SOV/124-58-7-7899

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 86 (USSR)

AUTHOR: Vlasov, B.F.

TITLE: On the Equations of the Flexure of Plates (Ob uravneniyakh izgiba plastinok)

PERIODICAL: Dokl. AN Azerb SSR, 1957, Vol 13, Nr 9, pp 955-959

ABSTRACT: An exposition is given of one version of the theory of the flexure of plates subjected to loads normal to their middle surfaces which does not directly involve the hypothesis of the straight invariable normals. The assumption is made that the normal to the undeformed middle surface of a plate subjected to flexural stress becomes distorted and that the shear deformations corresponding to this distortion vary parabolically throughout the thickness of the plate. The relative elongation along the normals equals zero. These assumptions make it possible to express the three-dimensional displacement vector of the points of the plate in terms of three functions of the coordinates of the middle surface, namely, the deflection of the middle surface and the two angles of rotation of the transverse elements situated on the middle surface and in the planes of its

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SOV/124-58-7-7899

On the Equations of the Flexure of Plates

normal sections parallel to the coordinate planes. Averaging the equations of equilibrium of an element of a continuous medium (the tangential stresses on the shell surface being assumed to equal zero), and employing certain corollaries of Hooke's law, the author obtains a system of three equations which determine the desired functions. He examines the boundary conditions. The author does not give any examples of applications of the theory to specific problems, neither does he compare his theory with the theory of thick slabs, nor does he analyze critically his investigation as a whole. Bibliography: 6 references. His own work excepted, the author makes no reference to the writings of Soviet scientists.

N.A. Kil'chevskiy

1. Metal plates--Mechanical properties 2. Metal plates--Deformation
3. Metal plates--Theory

Card 2/2

VLASOV, B.F.

AUTHOR: Vlasov, B.F. (Moscow). 24-12-11/24

TITLE: On the equations of the theory of bending of plates. (Ob uravneniyakh teorii izgiba plastinok).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.12, pp.57-60 (USSR)

ABSTRACT: Investigation of the stress state of an elastic plate, taking into consideration tangential stresses, was the subject of numerous papers. Reissner (Ref.1) derived equations for the bending of plates, taking into consideration the influence of tangential shear stresses; it proved possible to satisfy the three boundary conditions of Poisson so that it is not necessary to substitute the shear stresses and the rotary moment on the contour by statically equivalent shear force. Independently, Bolle (Ref.3) derived the bending equations of plates, taking into consideration the influence of shear stresses applying the same starting hypothesis as Reissner. Mindlin, R.D. (Ref.4) and Green, A.E. (Ref.5) and other authors published further work on the Reissner-Bolle equations and also on applying these equations to dynamic problems. In all these the tangential shear stresses were taken into

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consideration by dispensing with the hypothesis of the rectilinear element being normal to the central surface of the plate but they assumed that the element which is originally rectilinear and normal to the central plane will remain rectilinear also after deformation. In the general case, this is not in agreement with the parabolic law of changes along the width of the tangential shear stresses which applies to transverse bending of plates of medium thickness (Refs.6-8). The involved contradiction can easily be eliminated by dispensing with the hypothesis that the initially rectilinear element of the plate remains rectilinear. In evolving the fundamental equations, the following assumptions are made which characterize the state of bending of the plates: the rectilinear element of the plate is normal to the central plane prior to deformation and during deformation it bends in such a way that the displacements along the thickness of the plate change according to the parabolic law; the stress state of the plate is approximated by a system of envelope curves of the bending moments and of the shear forces. The first assumption imposes certain limitations on the displacement of the plates, since points of the plate

distributed on a vertical rectilinear element prior to deformation and after deformation are distributed along some curve defined by the parabolic law of changes along the width of the tangential shear stresses and absence of pressure of one longitudinal layer of the plate to the next. The second assumption permits selection, for the calculations, of a central plane, loaded by a transverse load and by bending and torsion moments and also by shear stresses distributed along the edge of the plate, whereby the potential deformation energy can be calculated from the work of the bending moments, the torsion moments and the shear stresses for the respective generalised displacements. These hypotheses permit dispensing with the St. Venant method for determining the tangential shear stresses which also results in better compliance with the conditions of compatibility defined in the papers of Reissner, Kirchhoff and Bolle (Refs.1-3). The resulting equations are Eqs.(3.12), p.59, and for comparison the Reissner-Bolle equations, transformed to the same functions, are given in Eqs.(3.15). Eqs.(3.12) are used for a square plate with a height to side ratio h/a = 1/3 with hinged edges and loaded by a

On the equations of the theory of bending of plates. 24-12-11/24

sinusoidal load. The greatest divergence from the sags obtained according to the classical theory is 38%, whereby the deviation from the accurate solution does not exceed 5%. The divergence between these results and the theory of Reissner-Bolle for the largest normal stresses amounted to 8%, whereby the here described solution approximates better the accurate solution.
There are 9 references, 4 of which are Slavic.

SUBMITTED: August 20, 1957.

AVAILABLE: Library of Congress.

Card 4/4

29486 S/035/61/000/009/010/036
A001/A101

3,5150

AUTHOR: Vlasov, B. I.

TITLE: On fluctuations of direction to a luminary due to turbulence of the atmosphere

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 9, 1961, 29-30, abstract 9A239 ("Tr. 14-y Astrometr. konferentsii SSSR, 1958", Moscow-Leningrad, AN SSSR, 1960, 197-202, Engl. summary)

TEXT: The commonly adopted viewpoint that the average magnitude of fluctuation of direction to a luminary due to turbulent movements in the atmosphere is proportional to $\sqrt{\sec z}$ is critized. It is noted that in visual observations a considerable fraction of image "tremor" is compensated by that the observer strives to sight at the average position of the image for a certain time interval. The tremor effect m in this case will be expressed as follows:

$$m^2 = c^2\sec^2 z + k^2 - 2rck\sqrt{\sec z},$$

where c is tremor amplitude, k is magnitude of compensation, r is correlation coefficient between the magnitudes of fluctuation and its compensation. From the

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analysis of observational material the following magnitudes were obtained: $c = 0''55$; $k = 0''37$; $r = 1.0$. The dependence of fluctuation magnitude on diameter of objective d is pointed out: $c = Ad^{-m}$. The value close to 1 is obtained for m from the observational data. There are 8 references.

Kh. Potter

[Abstracter's note: Complete translation]

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Vlasov, B.I.

3(0) PHASE I BOOK EXPLOITATION SOV/2205

Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy

Izmereniye vremeni; sbornik (Measurement of Time; Collection of Articles) Moscow, Standartgiz, 1958. 115 p. (Series: Its: Trudy, /vyp./ 1) Errata slip inserted. 2,000 copies printed.

Additional Sponsoring Agency: USSR. Komitet standartov, mer i izmeritel'nykh priborov.

Resp. Ed. of this vol: A.I. Konstantinov; Editorial Board: G.D. Burdun, A.L. Bubler, V.I. Yermakov (Deputy Chairman), M.K. Zhokhovskiy, L.M. Zaks, A.I. Konstantinov, V.F. Lubentsov (Chairman), M.P. Orlova, L.M. Pyatigorskiy, I.G. Rusakov, N.A. Sorokin (Resp. Secretary), V.P. Titov; Ed. of Publishing House: S.M. Davydova; Tech. Ed.: M.A. Kondrat'yeva.

PURPOSE: This book is intended for astronomers, geodesists, and other scientific personnel interested in the precise determination of time.

COVERAGE: This is the first of a series of periodicals to be published by the

Measurement of Time (Cont.) SOV/2205

All-Union Scientific Research Institute of Physical-Technical and Radio-Technical Measurements. The present volume is concerned with the measurement of time and represents some of the work of the Central Scientific Research Bureau of the Unified Time Service during the years 1947-1951. References accompany each article.

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